Physician Perspectives on the Importance of Facts Men Ought to Know About Prostate-specific Antigen Testing

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OBJECTIVE: **To determine physicians' rating of the importance of key facts men ought to know about prostate-specific antigen (PSA) screening and whether there are differences by specialty.**

PARTICIPANTS: **A nationwide random sample of internists, family physicians, and urologists stratified by physician specialty from *The Official ABMS Directory of Board-Certified Medical Specialists 2000 Edition.***

MEASUREMENTS: **Internists (*N* = 139), family physicians (*N* = 160), and urologists (*N* = 151) were asked to rate how important it is for men to know 17 facts about PSA screening using a 5-point Likert scale.**

MAIN RESULTS: **Of 769 eligible physicians, 450 responded, for an overall response rate of 59%. Urologists and nonurologists differed in rating how important it was for men to know 9 of the 17 key facts. Eight of the nine statements that urologists and nonurologists disagreed upon concerned facts reflecting uncertainty. Nonurologists were more likely than urologists to rate facts reflecting uncertainty as highly important for men to know. These included statements about prostate cancer risk, screening with PSA, and treatment.**

CONCLUSIONS: **Despite professional guidelines supporting informed decision making, the importance of facts men ought to know about PSA testing differ by physician specialty. Systematic differences may reflect differences in professional guidelines about PSA testing.**

KEY WORDS: **informed consent; prostate cancer screening.**
J GEN INTERN MED 2003;18:350–356.

Screening for prostate cancer with prostate-specific antigen (PSA) remains controversial because randomized controlled trials have not yet demonstrated whether regular PSA testing reduces prostate cancer mortality.[1–3] Mass screening with PSA could identify asymptomatic men with clinically insignificant lesions and expose them to treatments that carry a risk of harm.[1,3] Until clinical trials determine whether the benefits of screening and early detection outweigh the risks,[4–9] many professional organizations support informing men about the known risks and potential benefits of PSA testing. The American College of Physicians,[10] the American Cancer Society,[11] the American Academy of Family Physicians,[12] and the American Urological Association[13] recommend that physicians help men make an informed decision about PSA testing.

Despite professional guidelines,[11–14] informed decision making about PSA testing does not routinely occur.[15,16] Although primary care physicians and urologists are increasingly using the PSA test to screen for prostate cancer,[17–20] many men lack knowledge about it.[21–25] Given these findings, it is not clear whether primary care physicians and urologists believe it is important for men to know facts about PSA testing.

In this study, we determined how internists, family physicians, and urologists rate how important it is for men to know facts about prostate cancer screening with PSA. In a previous study,[26] a Delphi panel of experts in prostate cancer and focus groups of couples with screened and unscreened men identified 17 key facts about prostate cancer screening with PSA that they believed asymptomatic men ought to know. We examined whether urologists and nonurologists differed when rating the importance of key facts men ought to know about prostate-specific antigen testing.

METHODS

Sample

After obtaining institutional review board approval from the University of Texas-Houston Health Sciences Center, we drew a nationwide random sample, stratified by physician specialty, of internists (*N* = 833), family physicians (*N* = 1,292), and urologists (*N* = 983) from *The Official ABMS Directory of Board-Certified Medical Specialists 2000, 32nd edition, Volumes 1–4.* Physicians who did not have a listed office telephone number were dropped, leaving us with 508 internists, 495 family physicians, and 529 urologists. We called these physicians up to 3 times to verify their telephone number, the address published in the *Directory*, and their specialty listing. This left us with 315 internists, 260 family physicians, and 312 urologists. We then called these physicians to determine whether they were eligible to participate in the study using the following criteria: the physician practiced medicine at least 20 hours per week, the physician was not in residency training, and the physician's practice included men age 40 or older. After completing this process and dropping 9 undeliverable surveys (e.g., due to change in

Received from the Division of General Internal Medicine (ECYC, FTO, CA), The University of Texas-Houston Medical School, Houston, Tex; and the Center for Health Promotion and Prevention Research (SWV, MCH), The University of Texas-Houston School of Public Health, Houston, Tex.

This work was presented at the annual meeting of the Society of General Internal Medicine, May 2–5, 2001, San Diego, Calif.

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address), we arrived at a total sample size of 769 physicians comprised of 273 internists, 249 family physicians, and 247 urologists.

Survey Instrument

We developed a survey instrument containing 17 key facts about prostate cancer screening derived from a previous study[26] conducted in 1995. That study involved a Delphi panel of 12 experts in prostate cancer and 6 focus groups of couples with screened and unscreened men. Experts and couples were asked what facts they believed men ought to know. A multidisciplinary group helped us interpret those findings to arrive at 17 key facts that provide content for informed consent for PSA testing.[26]

In March 2000, prior to survey development, we resurveyed the original Delphi panel of experts[26] to review the 17 key facts for their accuracy and relevance based on current scientific knowledge. Most of the original panelists agreed that all items were still accurate and relevant.

We asked physicians in our sample to rate how important it is for asymptomatic men to know each of the 17 key facts about PSA screening. The response format used a 5-point Likert scale ranging from a score of 1 for "not at all important" to a score of 5 for "extremely important." We also asked physicians about their own experience with prostate cancer and screening with PSA, whether they would support PSA testing for asymptomatic men age 50 or older without risk factors for prostate cancer, and demographic questions about their age, gender, race/ethnicity, and marital status. We determined the number of years since they had obtained their medical degree from information in the *Directory*. The wording of the questions was pretested by administering it to a group of internists, family physicians, and urologists randomly selected from the 1999 edition of the *ABMS Directory* to ensure that questions could be understood and were answerable. The survey took less than 10 minutes on average to complete.

Data Collection

Between May 1, 2000, and October 31, 2000, we sent physicians up to 3 mailings at 2-week intervals, with 2 postcard reminders and 1 follow-up telephone call. For the initial mailing, we sent a cover letter, the survey instrument, and a postage-paid return envelope, followed by a postcard reminder. For the second mailing, we sent a second copy of the survey with a postage-paid return envelope, followed by a postcard reminder. Physicians who had not responded within 2 weeks of the second postcard reminder were contacted by telephone. Interviewers confirmed the mailing address and encouraged physicians to respond. For the third mailing, we sent a third copy of the survey with a postage-paid return envelope by priority mail. We received completed surveys from 139 internists, 160 family physicians, and 151 urologists.

Data Analysis

We compared the responses of internists, family physicians, and urologists to questions about how important it is for men to know each of 17 key facts about prostate cancer screening with PSA. After comparing the frequency distributions of the responses to each question by specialty using a Likert scale of 1 to 5, we found that the distribution of responses fell into 2 clusters: one cluster was scores 1 and 2 and the other cluster was scores 3, 4, and 5. Therefore, we combined the response scores of 1 and 2, "extremely important" and "very important," into a category labeled "highly important." We combined the response scores of 3, 4, and 5 ("neutral," "less important," and "not at all important") into another category labeled "less important."

Using the categories of "highly important" and "less important," we compared responses among each of the physician specialties using Pearson χ^2 statistics for categorical variables and analysis of variance or Student *t*-test for continuous variables. Because internists and family physicians were found to have similar demographic characteristics and responses, they were combined as nonurologists and compared with urologists for our analysis. We used logistic regression to compare differences in responses between nonurologists and urologists, adjusting for the effects of age and gender. We also used logistic regression to compare differences between male and female physicians while adjusting for the effects of age and specialty, and to compare differences among physicians across different age groups while adjusting for the effects of specialty and gender. Bonferroni corrections were made to account for the effect of multiple comparisons. Statistical analyses were performed using Stata 6.0 (Stata Corp., College Station, Tex).

RESULTS

Study Sample

Of the 769 eligible physicians, 450 responded, for an overall response rate of 59%. Response rates by specialty were: 51% for internists, 61% for urologists, and 64% for family physicians. Of those who responded, between 65% and 70% responded after the initial mailing. Approximately an additional 20% responded after the second mailing, and the remainder responded after the third mailing.

Overall, respondents and nonrespondents were similar with regard to age, gender, and years since obtaining their medical degree. Among urologists, respondents were older than nonrespondents (54.0 ± 8.8 y vs 51.5 ± 9.0 y, $P = .03$) and reported having had their medical degrees longer (27.8 ± 9.4 y vs 25.2 ± 9.3 y, $P = .03$). There were no significant differences between respondents and nonrespondents in the 2 other specialties.

Urologists were significantly more likely than internists or family physicians to be men, age 50 or older, and to have held their medical degree for a longer time

Table 1. Demographic Characteristics of Physicians Responding to Survey*

	Urologists (*N* = 151)	Family Physicians (*N* = 160)	Internists (*N* = 139)	Total (*N* = 450)†
Mean age, y ± SD	54.0 ± 8.8	47.2 ± 8.0	46.6 ± 10.9	49.3 ± 9.8
Age, y %				
<50	33.1	66.9	66.0	55.2
≥50	66.9	33.1	34.0	44.8
Mean years with medical degree ± SD	27.8 ± 9.4	19.6 ± 8.8	19.1 ± 11.2	22.0 ± 10.6
Gender, %				
Male	98.0	73.7	71.2	81.1
Female	2.0	26.3	28.8	18.9
Ethnic origin, %				
White	86.7	86.0	75.0	82.8
Black	2.0	1.9	2.2	2.0
Hispanic	0.7	4.5	5.8	3.6
Asian	8.0	7.6	13.9	9.7
Other	2.7	0	2.94	1.8
Marital status, %				
Married	89.3	90.3	85.9	88.6
Not currently married	10.7	9.7	14.1	11.4

* *Two-sample* t*-tests were used to compare the mean values of continuous variables between physicians in each specialty. Urologists had a higher mean age (*P ≤ *.001) and reported having their medical degrees longer (*P ≤ *.001) than either internists or family physicians.* χ^2 *tests for independence between categorical variables and physician specialty revealed that a larger proportion of urologists were male than either internists or family physicians (*P ≤ *.001).*

† *Missing data ranged from 1% of respondents (age) to 4% (years since obtaining medical degree).*

(Table 1). Urologists were significantly more likely than either internists or family physicians to have personally undergone prostate cancer screening with PSA, to have participated in a mass screening program for prostate cancer, and to support prostate cancer screening with PSA in men age 50 or older (Table 2).

Differences by Physician Specialty

Urologists and nonurologists differed in rating how important they thought it was for men to know 9 of the 17 key facts after adjusting for the effects of age and gender (Table 3). There appeared to be a systematic pattern to the disagreements. Eight of the nine statements that urologists and nonurologists disagreed upon concerned facts reflecting uncertainty. Nonurologists were more likely than urologists to rate facts reflecting uncertainty as highly important for men to know. These included statements about prostate cancer risk, screening with PSA, and treatment. Urologists were more likely than nonurologists to rate as highly important the statements that "nobody knows whether regular PSA screening will reduce prostate cancer mortality" and that "done together, the PSA and digital rectal exam (DRE) are most appropriate for men with at least a 10-year life expectancy." There were no significant differences between urologists and nonurologists on rating the importance of statements about false-positive and false-negative PSA test results.

With one exception, there were no significant differences between urologists and nonurologists in rating the importance of other facts about prostate cancer screening (Table 3). Urologists were more likely than nonurologists to rate as highly important the fact that done together, the DRE and PSA can screen for prostate cancer.

Differences by Physician Gender and Age

Male (*n* = 365) and female (*n* = 85) physicians differed significantly in rating only 1 of the 17 key facts after adjusting for the effects of age and specialty. Whereas 73% of the female physicians rated it highly important for men to know that PSA screening is controversial, only 43% of

Table 2. Physicians' Experience with Prostate Cancer and Screening*

	Urologists (*N* = 151), %	Family Physicians (*N* = 160), %	Internists (*N* = 139), %	*P* Value
Ever diagnosed with prostate cancer (males only).	0.7	0.0	0.7	.67
Undergone prostate cancer screening with PSA test (males only).	75.3	24.8	31.6	<.001
Ever participated in a mass screening program for prostate cancer.	85.3	8.9	11.0	<.001
Support PSA testing for asymptomatic men age ≥ 50.	96.7	80.4	82.1	<.001

* *Percentages based on the number of physicians responding to each question. The overall response rate was at least 97% for each question. PSA, prostate-specific antigen.*

Table 3. Unadjusted Percentages of Urologists and Nonurologists Rating Each Fact as Highly Important*

	Urologists (*N* = 151), %	Non-Urologists (*N* = 299), %	*P* Value
Facts reflecting uncertainty			
1. Prostate cancer may grow slowly and not cause symptoms. That is why it may not kill older men. They may outlive this cancer and die from something else.	79	90	<.01
2. A man over 70 is less likely to die from prostate cancer even though he is at higher risk of having it.	55	76	<.001
3. Nobody knows whether regular PSA screening will reduce prostate cancer mortality.	70	33	<.001
4. The PSA screening test is controversial.	27	59	<.001
5. There are advantages and disadvantages to taking the PSA test.	54	72	<.01
6. Done together, the PSA and digital rectal exam are most appropriate for men with at least a 10-y life expectancy.	92	73	<.001
7. False-positive PSA test results can occur.	89	92	.66
8. False-negative PSA test results and false-negative biopsies of the prostate can occur.	83	81	.79
9. Nobody knows whether treating early prostate cancer is helpful or whether one treatment is better than another.	45	75	<.001
10. There are side effects from prostate cancer treatment.	79	89	<.01
Other facts about prostate cancer screening			
11. The risk of prostate cancer is higher in a man who is: older, has a family history of it, is African American.	98	97	.88
12. The PSA test is a blood test for prostate cancer.	80	85	0.08
13. Done together, the digital rectal exam and PSA can screen for prostate cancer.	97	91	0.03
14. PSA screening can detect prostate cancer sooner than the digital rectal exam alone.	90	80	0.06
15. An elevated PSA test result may lead to other tests to see if cancer is present.	89	92	0.24
16. A man with early prostate cancer has options to choose from: watchful waiting, radical prostatectomy, or radiation therapy.	78	81	0.23
17. Although a man thinking about taking the PSA test can consult a doctor, he should make the final decision himself.	62	67	0.55

* *Percentages based on the number of physicians responding to each fact.*

the male physicians did so. A majority of physicians, regardless of gender, considered it highly important for men to know each of the other 16 facts.

Physicians age 50 or older differed significantly from their younger colleagues on rating the importance of 5 of the 17 key facts after adjusting for the effects of specialty and gender. These facts were fewer in number and different from those urologists found more important than nonurologists, even though urologists were older than nonurologists. Older physicians considered it highly important for men to know that the risk of prostate cancer is higher for men with a family history of prostate cancer or who are African American, that the PSA test is a blood test for prostate cancer, that the PSA and DRE are most appropriate for men with at least a 10-year life expectancy, and that there are potential side effects with prostate cancer treatment. Younger physicians considered it highly important for men to know that screening for prostate cancer with PSA is controversial.

Only one fact was rated significantly differently by specialty, gender, and age: the PSA test is a controversial screening test. Nonurologists, female physicians, and physicians under age 50 rated this fact highly important for men to know compared with urologists, male physicians, and physicians age 50 or older.

DISCUSSION

The terms "informed consent" and "informed or shared decision making" have been used interchangeably in the medical ethics literature.[27] Some authors believe that shared decision making is informed consent, because the purpose of informed consent is to promote informed patient participation in a shared decision-making process with a physician.[27–29] Others who make a distinction between the terms contend that shared decision making is an ideal of informed consent that involves patient participation in the decision-making process, but that informed consent may be limited in certain circumstances (e.g., emergencies) to a physician making a decision and then seeking autonomous authorization from a patient to act.[27] Because testing with PSA is controversial and takes place with asymptomatic men who have time to make a decision about screening, we believe that the purpose of informed consent in this case is to promote informed or shared decision making. Therefore, equating informed consent with informed decision making,

we sought physician perspectives on the importance of facts they believed men ought to know in order to make an informed decision about screening with PSA.

In a previous study,[26] we had determined the key facts men ought to know about screening for prostate cancer with PSA. These facts were used to define the content of informed consent for PSA screening by systematically defining what a reasonable person ought to know, consistent with the reasonable person standard of informed consent.[26] According to this standard, physicians ought to disclose information that a hypothetical reasonable person would need to know in order to make an informed decision.[30–32] We believed that the extent to which different specialty physicians in our study considered it important to disclose facts about prostate cancer screening with PSA might provide some insight about the practical effect of implementing professional recommendations supporting informed decision making on physician practice.

We found that internists, family physicians, and urologists believe that it is highly important for men to know facts about prostate cancer screening with PSA. However, urologists and nonurologists (internists and family physicians) differed on which facts were most important for men to know. Particularly on facts reflecting uncertainty, they disagreed. This suggests that systematic differences may exist between different specialists when providing informed consent. The significance of this finding is that even though the reasonable person standard of informed consent is a legal standard,[30–32] in practice, the content of this standard may differ by specialty.

Systematic differences between urologists and nonurologists suggested by our study results may reflect differences in the guidelines provided by the specialty societies versus the nonspecialist societies. Guidelines published by the American College of Physicians[10] recommend informing men that the benefits of 1-time or repeated screening and aggressive treatment of prostate cancer have not yet been proven. They also recommend informing men that there is a significant risk for chronic illness, particularly with regard to sexual and urinary function, associated with treatments. That may explain why we found that in general, statements reflecting uncertainty were more important to nonurologists.

There were, however, 2 statements reflecting uncertainty that were more important to urologists than nonurologists (Table 3). Guidelines published by the American Urological Association[13] state that men should be informed that it is uncertain whether early detection and treatment of prostate cancer reduces the mortality rate. That may explain why urologists rated more highly important than nonurologists the statement that nobody knows whether regular PSA screening will reduce prostate cancer mortality. Guidelines by the American Urological Association also recommend offering screening to men 50 years or older with at least a 10-year life expectancy. That may explain why urologists also rated more highly important than nonurologists the statement that done together, the PSA and DRE are most appropriate for men with at least a 10-year life expectancy.

Specific differences in the importance urologists and nonurologists assigned to different statements about screening also may reflect differences in knowledge, practice patterns, and attitudes toward screening. Previous studies[33,34] have shown differences in knowledge between urologists and nonurologists. Compared with nonurologists, urologists considered it highly important for men to know that it is unclear whether regular PSA screening will reduce prostate cancer mortality. The lesser importance nonurologists place on this fact is consistent with other studies showing that family physicians believe that prostate cancer screening decreases mortality and morbidity[33] and that primary care physicians believe that PSA screening is effective.[34]

Some differences we found between urologists and nonurologists may be attributable to differences in practice patterns. Urologists considered it highly important for men to know that the PSA and DRE are most appropriate for men with at least a 10-year life expectancy. Fowler et al. found that most primary care physicians continue to routinely do PSA testing on men over age 74, the age at which men with average co-morbidity are not expected to survive 10 years, even though most urologists do not.[20]

We also found that nonurologists, compared with urologists, considered it highly important for men to know that it is unclear whether treatment of early, localized prostate cancer is helpful and that there are side effects to treatment. Because nonurologists do not administer treatments for prostate cancer, they may be more concerned about them. It also is possible that urologists may downplay treatment complications. For example, they may argue that the complication data for a radical prostatectomy are inflated and that better surgeons have better outcomes.[35]

Among other facts about prostate cancer screening (Table 3), the only fact urologists and nonurologists rated differently was the statement that done together, the DRE and PSA can screen for prostate cancer. Urologists were more likely to rate that fact highly important for men to know. It is possible this may partially be attributable to practice patterns. Although no studies have directly compared the screening behavior of internists, family physicians, and urologists in the same population, McKnight et al. found that 98% of urologists and 87% of family physicians in the Southeast reported screening asymptomatic men with PSA.[18]

Other differences between urologists and nonurologists may be due to differences in their attitudes toward screening. Hoffman et al. found that primary care physicians believe that screening with PSA should not be left to specialists.[34] It is possible that nonurologists may not be as confident about screening with the DRE compared with urologists, who are more likely to perform this test. Nonurologists, therefore, may prefer performing the PSA blood test instead. To our knowledge, no studies have

compared variability between the 2 groups in performing the DRE.

Some of the differences we found by physician age may be due to age-related experience. Physicians age 50 and older are themselves candidates for prostate cancer screening with PSA and may be more aware of the risk factors for prostate cancer, of what screening involves, and of the potential side effects of treatment. Younger physicians who are not yet candidates for PSA screening may believe that it is more important for men to know that screening with PSA is controversial.

This study has several limitations. Although we had a lower response rate for internists (51%) compared with family physicians (64%) and urologists (61%), differences between respondents and nonrespondents overall with respect to age, gender, and years since obtaining their medical degree were not significant. Our response rate overall was as high or higher than other studies with physician respondents.[36] Our study was limited to board-certified physicians rather than all practicing physicians, some of whom would not be board certified. Although our results do not reflect actual practice, they suggest that there may be differences in communication by physician specialty, which could be confirmed in future studies.

Physicians have an ethical obligation to engage patients in informed decision making for screening tests such as the PSA test whose net benefit has not yet been proven. A recent Institute of Medicine report[37] also recommends that physicians and patients exchange knowledge and information in order to arrive at an evidence-based decision consistent with a patient's needs and values.

Our findings show that physicians recognize the importance of informed decision making. However, our findings also show that the facts physicians deem important to discuss with patients differ by specialty. Physicians should at least be aware that they hold some facts to be more important than others, depending upon their specialty, and that in practice, this might affect the content of their discussions with patients or the way in which they frame information when discussing potential risks and benefits. Physicians may want to know what facts other specialists consider important so that they may provide balanced information when engaging in shared decision making about a controversial screening test.

Future studies can examine how differing interpretations of professional guidelines, physician knowledge, practice patterns, and attitudes toward screening affect informed decision making even before patient needs and values are taken into account. Studies may explore further whether generalists, such as family physicians and internists, are more likely than specialists, such as urologists, to consider notions of uncertainty important to disclose when participating with patients in informed decision making. Studies also may determine how to help physicians from different specialties engage patients in a discussion of the facts relating to controversial screening tests, for example, through tailored decision aids[38] that may save physician time and provide balanced and consistent information. Otherwise, different professional guidelines emphasizing different facts, in practice, may lead to different kinds of informed decision making, depending not only on who the patient is but also on who is engaging the patient.

We thank Charles Forbes, Systems Manager at the Clinical Research Center, for his technical assistance.

This study was funded by National Cancer Institute grant K08-CA78615, awarded to Dr. Chan as a Clinical Scientist Award. Additional support was provided by NIH grant M01-RR02558, the Clinical Research Center at the University of Texas-Houston.

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